

Mysmenidae and Hadrotarsidae from the Neotropical Guaraní Zoogeographical Province (Paraguay and South Brasil) (Araneae)

by

Léon BAERT *

With 37 illustrations

ABSTRACT

A new Mysmenid genus is described from Paraguay. For the first time representatives of the Hadrotarsidae are reported from the Neotropical Zoogeographical Region. A new genus and two species are described from Paraguay and South Brasil.

Guaraní is one of the thirteen Zoogeographical Provinces into which the Neotropical Region has been subdivided by CABRERA & YEPES (cit. in E. J. FITTKAU *et al.* 1969). This Zoogeographical Province comprises the mixed and transitional districts between the Guiana-Brasilian and Andean-Patagonian Regions, including forest, savannah and steppeformations in the South of Paraguay, southern Brasil, Uruguay and North-East Argentina.

Dr. B. HAUSER and Dr. V. MAHNERT of the Muséum de Genève, gave me the opportunity to study the interesting spider material sampled by members of the Muséum d'Histoire naturelle de Genève (F. BAUD, C. DLOUHY, M.-C. DURETTE-DESSET, V. MAHNERT, J.-L. PERRET and A. and P. VAUCHER) during their zoological missions to Paraguay¹. I am indebted to them. Their material formed the basis of this paper.

¹ Zoological investigations carried out in collaboration with the Swiss Technical Program Paraguay and the Biological Inventory Program of the Ministerio de Agricultura y Ganaderia, Paraguay.

* Institut royal des Sciences naturelles de Belgique, Rue Vautier 29, B-1040 Bruxelles, Belgique.

The Types of the described taxa are at the "Muséum d'Histoire naturelle de Genève" and at the "Koninklijk Belgisch Instituut voor Natuurwetenschappen".

FAM. MYSMENIDAE

Itapua gen. n.

Diagnosis: (based upon genitalia) cymbium strongly incurved with the apical lobe tending to form a groove; no cymbial thorn; well developed bulbal shield; short and thick coiled embolus; receptaculi trumpetlike with a number of pellucid side-pouches. Type species: *Itapua tembei* sp. n.

Derivatio nominis: The genus name is derived from the name of the Province of Itapua.

Differential diagnosis of the new genus: Most Mysmenid genera are very similar in general morphology. The only important valid bases to work with are, till now, restricted to the cymbial, bulbal and vulval characteristics.

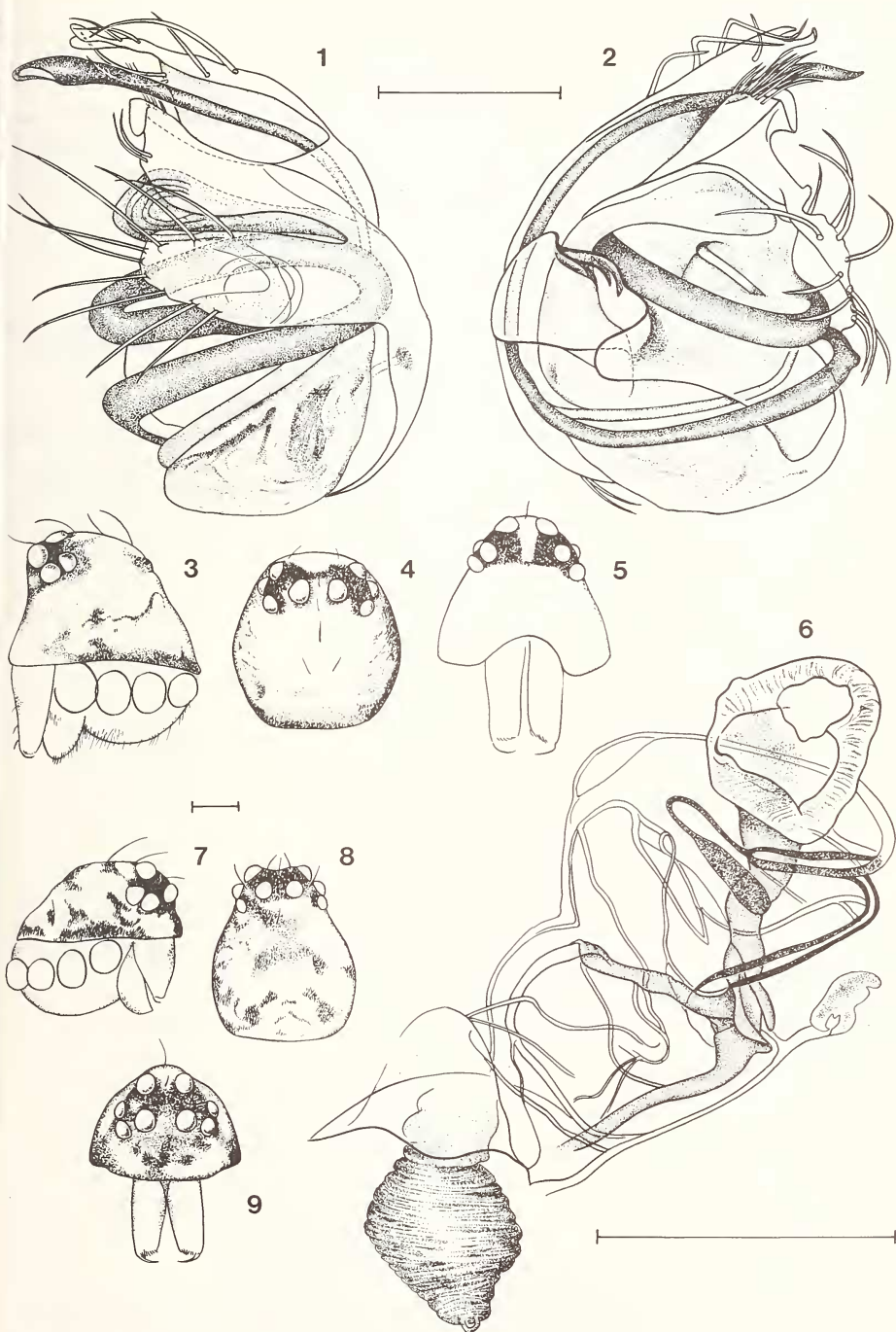
The new genus, described in this paper, is by general morphology, for the most somewhat similar to *Calodipoena* Gertsch & Davis, 1936, *Mysmena* Simon, 1894 and *Microdipoena* Banks, 1895. It's fairly distinguishable from *Calodipoena* by the strong incurved cymbial apex, the more complex bulbus with a well developed bulbal shield and the absence of a cymbial thorn. The receptaculi are trumpetlike with lateral pellucid side-pouches, this in contrast to the small ovoidlike receptaculi in *Calodipoena* (see vulva *Calodipoena incredula* Gertsch & Davis, 1936, Fig. 16).

In *Mysmena*, the apex of the cymbium forms a groove wherein the embolus lies at rest. In *Itapua* gen. n., a similar situation occurs, but the cymbium is more strongly incurved at the apex so that we cannot speak of a true groove. There is a second incurvation giving rise to a secundar smaller lobe. This secundar lobe has also been noticed in *Calodipoena incredula*, after study of the palp with a compound microscope (Fig. 15). *Itapua* gen. n. is further distinguishable from *Mysmena* by the presence of the well developed bulbal shield (not present in *Mysmena*) and the absence of a cymbial thorn. The bulbus of the Type species *Mysmena leucoplagiata* (Simon, 1879) is more or less flattened, while it's ovoid in this new genus. The vulvae are strikingly different from each other.

Microdipoena also possess a well developed bulbal shield, but has a complex cymbial apex which is in no relation to the long coiled embolus. This embolus consists, so to speak, of two parts, a distal and a proximal one. The coiling of the embolus abruptly changes of direction at a certain spot. From this separating spot a small process projects, a characteristic found in both known species: *Microdipoena guttata* Banks, 1895 and *M. elsaе* Saaristo, 1978. *Microdipoena* has also a very different vulval configuration.

Itapua tembei g.n., sp.n.

Figs. 1-2: ♂ palpus, dorsal and ventral view; Figs. 3-5: ♂ Carapace, lateral, dorsal and ventral view; Fig. 6: vulva, right half; Figs. 7-9: ♀ Carapace, lateral, dorsal and frontal view. Scale lines = 0.1 mm.



Itapua tembei sp. n.

Material examined

PARAGUAY

Province of Itapua, Salto Tembey, 4 km above waterfalls, forest litter, 01.XI.1982, ♂ Holotype, ♂ Paratype, 6 ♀♀ Paratypes and a immature; holotype in Muséum d'Histoire naturelle de Genève. Province of Alto Parana, in the vicinity of Puerto Sta Teresa, forest litter, 03.XI.1979, ♀ Paratype.

Description (Figs. 1-5: ♂, Figs. 6-9: ♀):

Male Holotype (total body length: 0.77 mm): Figs. 1-5.

Colour: Carapace greyish brown with black ocular area; sternum yellow with two longitudinal dusky bands; legs greyish-brown with distal end of segments dusky; abdomen greyish-brown with lateral white broken stripe.

Carapace (Figs. 3, 4 and 5): Length: 0.38 mm; width: 0.33 mm; height: 0.27 mm). Anterior and posterior eye-rows strongly procurved; AM-eyes a little more than 2.5 times their diameter apart, not overhanging; PM-eyes one diameter apart; AM's and L's nearly contiguous, forming two groups of three eyes; ocular quadrangle much broader than long (width to length: 2.2); clypeus high, concave; chelicerae approximate 0.8 times carapace height. Sternum heart-shaped, nearly as wide as long, blunt posteriorly.

Legs: Clasping spur on Mt I; approximate measurements (in mm):

	<i>Fe</i>	<i>Pa</i>	<i>Ti</i>	<i>Mt</i>	<i>Ta</i>	<i>Total</i>
I	.31	.14	.20	.16	.20	1.01
II	.26	.13	.18	.15	.19	0.91
III	.19	.09	.12	.10	.16	0.66
IV	.25	.11	.17	.12	.18	0.83

Male palp: See Figs. 1 and 2.

Female allotype (Figs. 6-9).

As male but for the following characteristics:

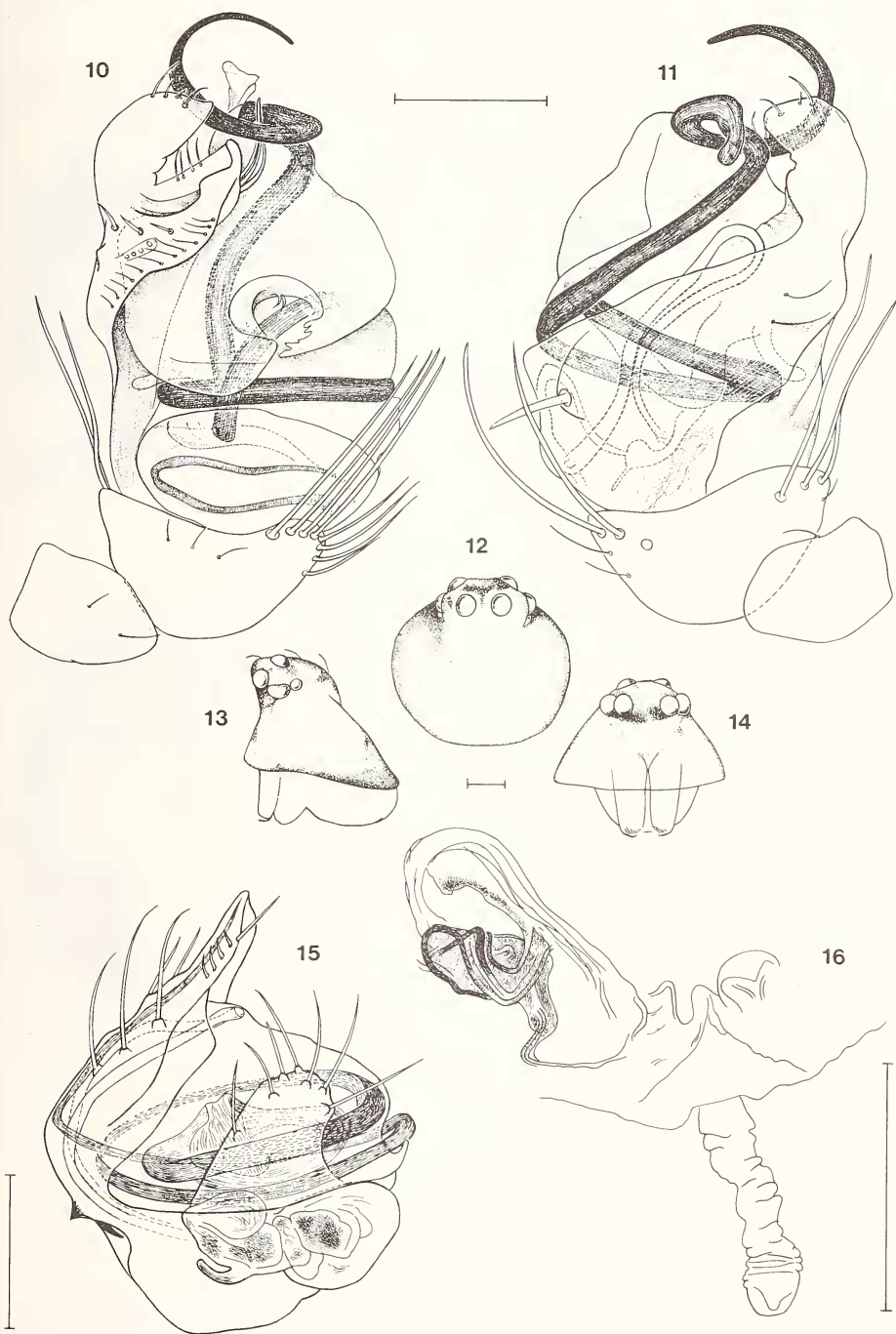
Carapace (Figs. 7, 8 and 9): Length: 0.33 mm; width: 0.29 mm; height: 0.15 mm. AM-eyes slightly more than their diameter apart; PM-eyes one diameter apart; L-eyes contiguous; AM-eyes further apart from the L's than in male; ocular quadrangle broader than long (width to length: 1.7).

Legs: approximate measurements (in mm):

	<i>Fe</i>	<i>Pa</i>	<i>Ti</i>	<i>Mt</i>	<i>Ta</i>	<i>Total</i>
I	.26	.12	.16	.13	.17	.84
II	.22	.12	.14	.12	.17	.77
III	.19	.09	.12	.11	.15	.66
IV	.25	.11	.16	.13	.15	.80

Microdipoena guttata Banks, 1895

Figs. 10 & 11: ♂ palpus; Figs. 12-14: ♂ Carapace, dorsal, lateral and frontal view. *Calodipoena incredula* Gertsch & Davis, 1936 — Fig. 15: left ♂ palpus; Fig. 16: vulva, left half. Scale lines = 0.1 mm.



Vulva (Fig. 6): Trumpetlike receptaculi with a number of lateral pellucid side-pouches. A very short oviduct projects out near the stigma. Small bell-glass shaped atrium.

Derivatio nominis: The species name is derived from the Type-locality Salto Tembey.

Microdipoena guttata Banks, 1895

After examination of the Type-specimen of *M. guttata*, no striking differential characteristics could be found in the specimens captured in Paraguay. Some remarks concerning the structure of the palp (Figs. 10-11) of this species can be made: apex of cymbium more complex than visible on the drawings made by LEVI (1956), a little cymbial thorn can be perceived, and there is a well developed apical bulbal shield. According to these findings and after comparison with specimens of *Microdipoena elsae* Saaristo, 1978, we can confirm the clear congeneric relation of both species (cfr. BRIGNOLI 1980).

This species is known from the southern part of the U.S.A. and the Antilles. A specimen originating from the Cocos Islands (Leg. *S. Jacquemart*, October 1978) has also been examined. Though the palpal structure resembles this of the Paraguayan and U.S.A. specimens, it is much smaller.

Records to be added to the distribution of the species:

- Paraguay, Province of Concepcion, near Estancia Garay Cué, 22.X.1979: 3 ♀♀;
- Ibidem, Province of Itapua, Salto Tembey, 01.XI.1982: 3 ♀♀;
- Ibidem, Province of Concepcion, ca 5 km east of Colonia Sgto José E. LOPEZ, 23.X.1979: ♀; between Isla Real and Estancia Sta Maria, borders of l'Arroyo Tagatya-mi, 20.X.1979: ♀.

FAM. HADROTARSIDAE

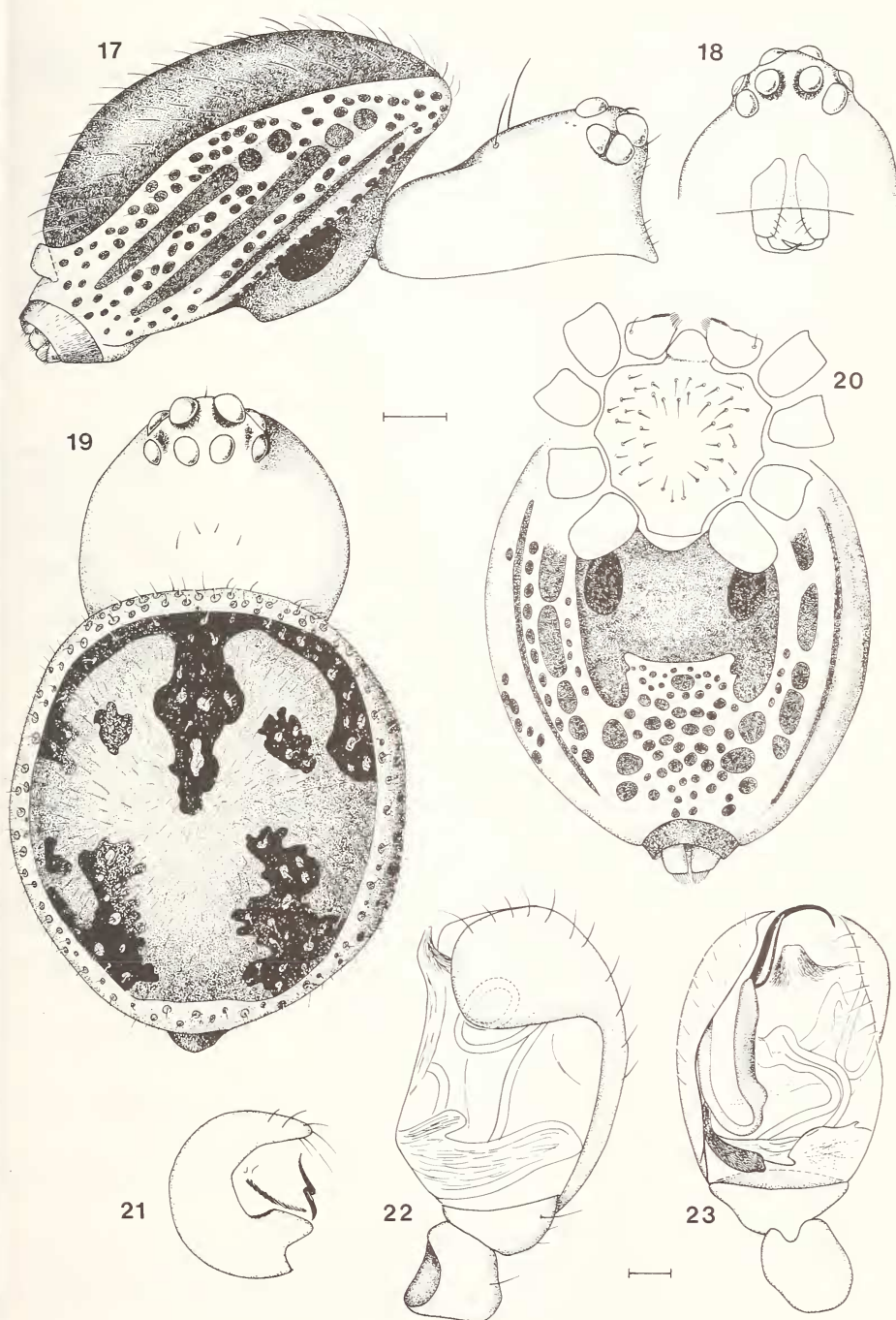
Guaraniella gen. n.

Diagnosis: Eight clearly discernible eyes arranged in two rows, A-row recurved, P-row straight, PM-eyes normal in shape; ♂ palpus with well developed cuplike cymbium in which the bulbous rests, cymbium with deep apical notch, short hooked embolus; abdomen in males with dorsal scutum, in females covered with numerous small oval sclerites, venter with epigastric scutum and postepigastric sclerites, sides folded; vulva with two big spherical receptaculi lying close together, a second much smaller pair is visible between them; small colulus present. Type species: *Guaraniella mahnerti* sp. n.

Guaraniella mahnerti g. n., sp. n.

Fig. 17: ♂, general lateral view; Fig. 18: ♂ Carapace;

Fig. 18: frontal view of Carapace; Fig. 19: general dorsal view; Fig. 20: general ventral view; Figs. 21-23: ♂ palpus, apical, lateral and ventral view. Scale lines = 0.1 mm.



Derivatio nominis: Named after the Zoogeographical Province in which they were captured.

Differential diagnosis: This genus is easily distinguishable from *Hadrotarsus* and *Gmogala* by the presence of normal shaped PM-eyes and by the general cymbial structure with short embolus.

***Guaraniella mahnerti* sp. n.**

Material examined

BRASIL

Santa Catarina, Nova Teutonia (27° 11 S, 52° 23 W), leg. F. PLAUMANN (IG 21414) VII/1955: ♂ Holotype, 6 ♂♂ Paratypes, 14 ♀♀ Paratypes; V/1957: ♂ Paratype, ♂ imm.; VIII/1957: 3 ♂♂ Paratypes, 4 ♀♀ Paratypes; holotype in Koninklijk Belgisch Instituut voor Natuurwetenschappen.

PARAGUAY

Amambay Province, ca 10 km south of Bella Vista, 11.X.1979, ♀ Paratype; Province of Concepcion, Colonia Sgto José E. LOPEZ, 13.X.1979, ♂ Paratype; Estancia Viancho Postillon, ca 5 km east of Puerto Max, 19.X.1979, ♂ Paratype; Province of Alto Parana, ca Puerto Sta Teresa, 3.XI.1979, ♂ Paratype; Puerto Bertoni, forests of Rio Alto Parana, 11.XI.1979, 2 ♂♂/4 ♀♀ Paratypes; Pto Stroessner, 15.II.1983; ♂/2 ♀♀ Paratypes, 29.II.1983; ♀ Paratype, 3.VII.1983: ♀ Paratype; Province of Neembucu, 5 km north-east of Pilar, 18.X.1982, 2 ♂♂/♀ Paratypes; Province of Itapua, 10 km south of Santa Maria, 25.X.1982, ♀ Paratype; San Benito (Pastoreo), 29.X.1982, 4 ♂♂/2 ♀♀ Paratypes.

Description (Figs. 17-23: ♂, Figs. 24-27: ♀).

Male Holotype (total body length: 1.53 mm).

Colour: Carapace light brown, rims of eyes suffused with black, sternum yellowish; legs uniformly yellow-brown; abdomen: dorsal and ventral scutum and lateral sclerites of a deeper brown, the dorsal scutum with faint pattern of blackish areas.

Carapace (Figs. 17, 18 and 19): Length: 0.59 mm; width: 0.58 mm; height: 0.34 mm. Highest point of carapace at PM-eyes level, curving further slightly downwards, and abruptly slooping downwards at it's second half.

Eyes: L's nearly contiguous; AM-eyes very close to AL-eyes; AM-eyes 4/5th of their diameter apart; PM-eyes approximate 1/3th of their diameter apart.

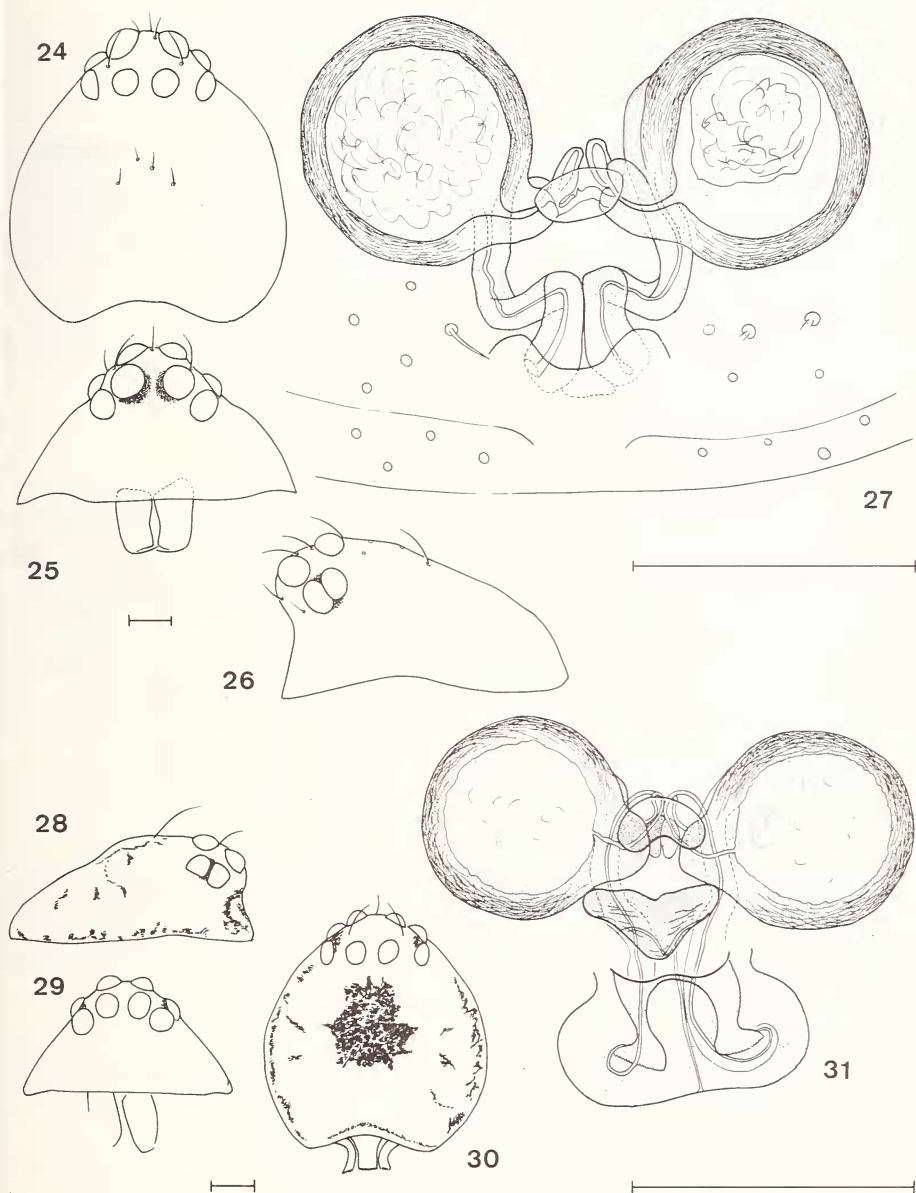
Chelicerae: Small, conical, ending into a long fang, without teeth or any other particular structure.

Clypeus: High, 7/10th of carapace height.

Maxillae: Converging in front of labium, apex blunt and covered with a dense scopula, anterolateral serrula of about 16 teeth (seems to be variable).

Sternum (Fig. 20): Nearly as wide as long, posteriorly strongly truncated separating the fourth coxae by a distance equal to their length; middle of sternum smooth; sub-marginal region clothed with setae pointing inward.

Legs: Three claws of which the main ones are pectinated; Mt with one and Ti with two extremely long trichobothriae; Ta I swollen, ventrally clothed with numerous suckerlike adhesive hairs, no visible constriction between Ta and Mt of first legs. Approximate measurements (in mm):



Guaranella mahnerti g. n., sp. n.

Figg. 24-26: ♀ Carapace, dorsal, frontal and lateral view;
 Fig. 27: vulva. *Guaranella bracata* sp. n. — Figg. 28-30: ♀ Carapace, lateral, frontal
 and dorsal view; Fig. 31: vulva. Scale lines = 0.1 mm.

	<i>Fe</i>	<i>Pa</i>	<i>Ti</i>	<i>Mt</i>	<i>Ta</i>	<i>Total</i>
I	.47	.22	.33	.22	.33	1.57
II	.41	.21	.28	.20	.30	1.40
III	.42	.21	.28	.21	.30	1.42
IV	.48	.29	.42	.26	.34	1.79

Male palpus (Figs. 21, 22 and 23): *Ti* saucerlike, *Ta* as described in generic diagnosis.

Abdomen (Figs. 17, 19 and 20): Dorsal scutum covering whole dorsum; epygastric scutum present with well defined booklungareas, hind corners extending into the post-epygastric half of abdomen and splitting into three to four smaller scutellar plates; postepygastric region covered with numerous small sclerites; sides of abdomen folded and covered with three large striplike sclerites.

Spinnerets: Six with two medians extremely reduced, surrounded by a chitinous ring; inner stridulating ridges on anterior spinnerets present; very small colulus provided with two pseudoserrated hairs.

Female Allotype (total body length: 1.41 mm)

As in male but for the following characteristics:

Colour: Deeper brown, dorsum blackish with creamy pattern, small sclerites brown.

Carapace (Figs. 24, 25 and 26): Length: 0.60 mm; width: 0.57 mm; height: 0.33 mm.

Eyes: AM-eyes approximate 4/7th of their diameter apart; PM-eyes a little less than half their diameter apart.

Palpus: *Ti* with 1 trichobothrium, terminal pectinated claw present.

Legs: Approximate measurements (in mm):

	<i>Fe</i>	<i>Pa</i>	<i>Ti</i>	<i>Mt</i>	<i>Ta</i>	<i>Total</i>
I	.45	.22	.30	.20	.31	1.48
II	.41	.21	.27	.19	.30	1.38
III	.41	.23	.31	.20	.31	1.46
IV	.51	.32	.44	.29	.35	1.91

Abdomen: No dorsal scutum; surface covered with numerous small sclerites, each bearing a hair; epygastric scutum present, posterior corners extending backwards into postepygastric area, followed by a pair of greater sclerites; postepygastric half of venter covered with numerous small sclerites, each bearing a hair, very small colulus with two pseudoserrated hairs.

Vulva: See Fig. 27.

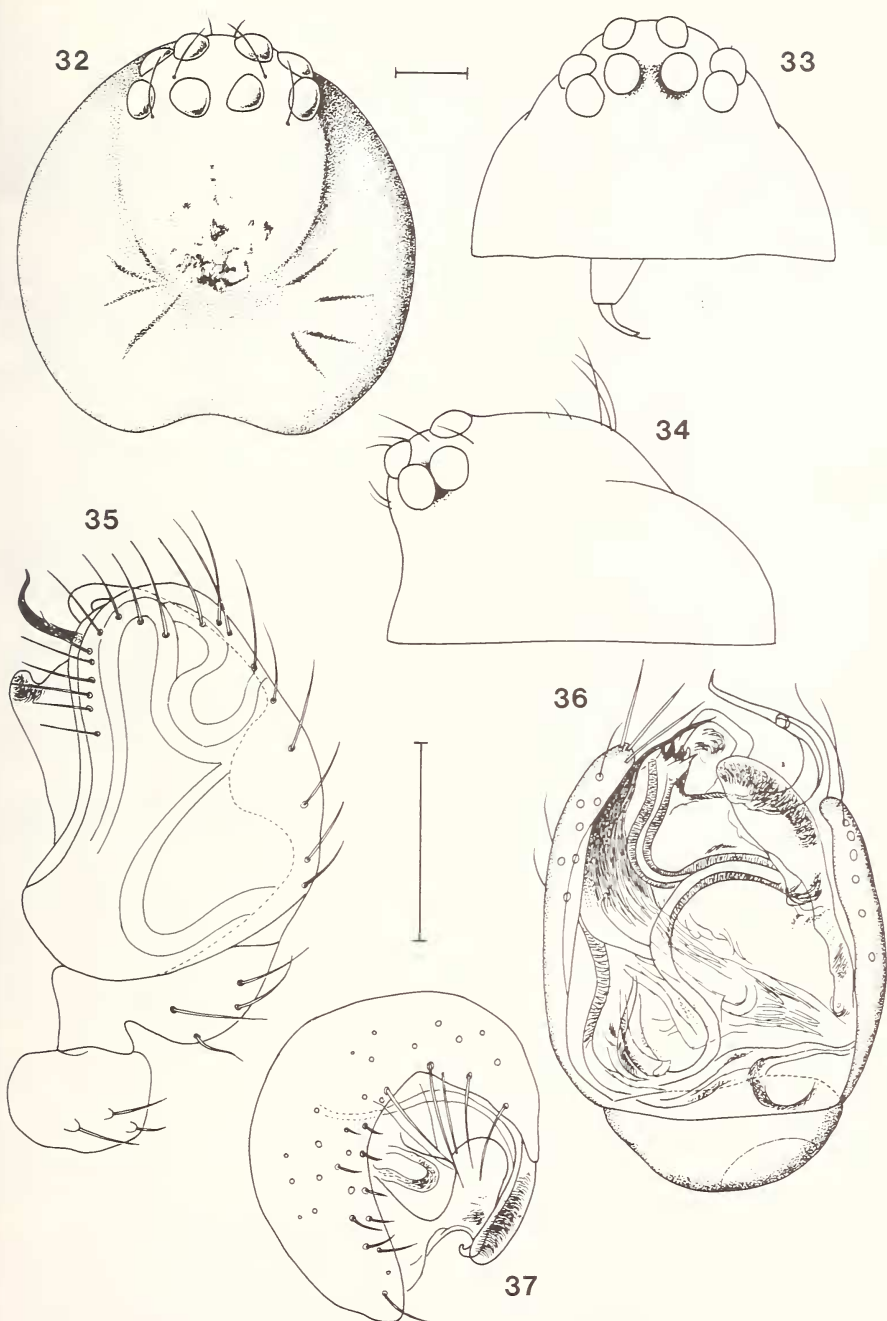
Derivatio nominis: This species is dedicated to Dr. V. MAHNERT, who gave me the opportunity to discover and describe the Hadrotarsid material of Paraguay.

Guaraniella bracata sp. n.

Figg. 32-34: ♂ Carapace, dorsal, frontal and lateral view;

Figg. 35-37: ♂ palpus, lateral, ventral and apical view.

Scale lines = 0.1 mm.



Guaraniella bracata sp. n.

Material examined

PARAGUAY

Province of Itapua, San Benito (Pastereo), litter, 29.X.1982, ♂ Holotype (Muséum d'Histoire naturelle Genève); Province of Concepcion, vicinity of Estancia San Luis, litter, 5.X.1979, 2 ♀♀ Paratypes; Province of Paraguari, Estancia Montiel Potrero, 15 km east of Cerrito, litter, 12.X.1982, ♂ Paratype.

BRASIL

Santa Catarina, Nova Teutonia (27° 11 s, 52° 23 W), Leg. F. PLAUMANN, IG. 21414, VII/1955: 9 ♂♂/14 ♀♀ Paratypes; VIII/1957: ♂/4 ♀♀ Paratypes; V/1957: 2 ♂♂ Paratypes.

Description (Figs. 32-37: ♂, Figs. 28-31: ♀):

Male Holotype (total body length: 1.13 mm)

Colour: Carapace brown, eyerims locally suffused with black, dark brown striae, center of carapace suffused with black; legs uniformly yellow; sternum, labium and maxillae yellowbrown suffused with black; abdomen, dorsal and ventral scutum chestnut brown with irregular black pattern, integument between scutar creamy, lateral lancet-form scutellar plates also chestnut brown suffused with black.

Carapace (Figs. 32, 33 and 34): Length: 0.47 mm; width: 0.49 mm; height: 0.33 mm. Cephalic region uniformly elevated, median thirth of carapace, just behind eye-area, running more or less horizontally, abruptly sloping downwards in the last thirth.

Eyes: L's contiguous; AM-eyes very close to L's; AM-eyes half their diameter apart; PM-eyes less than half their diameter (0.4) apart.

Maxillae: Serrula with 13 teeth (dissected ♂ Paratype), variable.

Sternum: Longer than wide, center smooth, sub-marginal region covered with less setae than in *Guaraniella mahnerti* sp. n.

Legs: Approximate measurements (in mm):

	<i>Fe</i>	<i>Pa</i>	<i>Ti</i>	<i>Mt</i>	<i>Ta</i>	<i>Total</i>
I	.39	.18	.28	.17	.27	1.29
II	.32	.17	.23	.16	.28	1.16
III	.30	.18	.24	.17	.29	1.18
IV	.45	.25	.37	.24	.31	1.62

Male palpus: See Figs. 35, 36 and 37.

Abdomen: Scutellar arrangement as in former species.

Female Allotype (total body length: 1.16 mm):

As in male, but in following respects:

Colour: Carapace with darker striae; abdomen black with creamy pattern, in general a deeper brown.

Carapace (Figs. 28, 29 and 30): Length: 0.49 mm; width: 0.46 mm, height: 0.23 mm.

Eyes: AM-eyes separated by 2/5th of their diameter; PM-eyes nearly half their diameter apart.

Legs: Approximate measurements (in mm):

	<i>Fe</i>	<i>Pa</i>	<i>Ti</i>	<i>Mt</i>	<i>Ta</i>	<i>Total</i>
I	.32	.18	.23	.17	.30	1.20
II	.35	.18	.22	.15	.27	1.07
III	.32	.19	.24	.16	.29	1.20
IV	.43	.24	.40	.21	.33	1.61

Vulva (Fig. 31): Receptaculi with the same conformation and position as in *G. mahnerti* sp. n.; copulatory duct more complex in structure with a kind of sclerotised receptory cavities of trouserlike shape. From the bottom of these "leg-like" cavities a narrow ductus runs upwards to the receptaculi.

Derivatio nominis: (Lat. *bracatus* = with trousers) This name was given because of the trouserlike pouch in which the copulatory ducts are discharging into.

Differential diagnosis: *Guaraniella bracata* sp. n. is easily recognisable from *Guaraniella mahnerti* sp. n. by its general male palpal structure, the lateral male carapace profile and by the vulval conformation.

Discussion: The Hadrotarsidae were, till now, only known from the Australian Zoogeographical Region, from the following species: *Hadrotarsus babirussa* Thorell, 1881, from Yule Island (Papua New Guinea), *Gmogala scarabaeus* Keyserling, 1890 from Sydney (Australia), three species in Tasmania described by Hickman in 1943, namely *Hadrotarsus ornatus*, *fulvus* and *setosus*. All of them are only represented by a few specimens.

Two species for which a new genus is erected can be added from Paraguay and South Brasil. This means that the distribution of this family is not restricted to the Australian Region, but reaches as far as the Neotropical Region. This could mean that the Hadrotarsidae show, as the Archaeidae (LEGENDRE 1977), a typical gondwanian distribution, explained by the fracturing in mesozoic times of the Gondwanaland and the thereupon following drift of the continental plates. A further implication of this statement is that we expect representatives of this family in the southern part of Africa.

Recently WUNDERLICH (1978) synonymised the Hadrotarsidae with the Theridiidae, basing his statement upon one single non-typic species: *Euryopis flavomaculata* (C. L. KOCH, 1856). I still consider the Hadrotarsidae as a valid family, as there are too many differential characteristics between both families. A detailed definition of the family was given by HICKMANN (1943). We had like to make the following amendments:

1° the ventral surface of the swollen Ta I is, in both sexes, provided of suckerlike adhesive hairs;

2° the vast majority of the hairs (along body, legs, etc.) are of the pseudoserrated type. The comb of serrated setae on the ventral surface of Ta IV of the Theridiidae is completely lacking.

3° The reniform shape of the PM-eyes is not mere than a generic character (cfr. LEVI 1968: 143). The discovery of this Neotropical material proves it.

4° The dorsal scutum can be absent and replaced by numerous small oval sclerites.

5° The long thread-like embolus of *Hadrotarsus* is only a generic character.

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to Dr. V. MAHNERT and Dr. B. HAUSER (Muséum d'Histoire naturelle de Genève), who lend me this material for study, and to Prof. Dr. H. W. LEVI (Museum of Comparative Zoology, Cambridge-Massachusetts), Dr. N. PLATNICK (American Museum of Natural History, New York) and Dr. R. JOCQUÉ (Koninklijk Museum voor Midden Afrika, Tervuren) for the loan of Type-material. I also wish to thank Mrs. K. de Pierpont-Bouckaert, who made the final drawings.

RÉSUMÉ

Un genre nouveau et une espèce nouvelle (*Itapua tembei* g.n., sp.n.) de la famille des Mysmenidae est décrit du Paraguay. La famille des Hadrotarsidae est citée pour la première fois de la Région Néotropicale. Un genre nouveau (*Guaraniella* g.n.) et deux espèces nouvelles (*G. mahnerti* sp. n. et *G. bracata* sp. n.) sont décrits du Paraguay et du Sud du Brésil.

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